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Technology Package for Prevention and Control of Mastitis in Dairy Animals

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Feed the Future Innovation Lab for Livestock Systems



BACKGROUND TO DAIRY SECTOR IN NEPAL

- Dairy is the most important sub sector in Nepal's livestock system and contributes almost two-thirds to the livestock share of the GDP.
- Dairy animals are an important source of income, food and nutrition security at the household level.
- Improvement in the production and productivity of dairy animals substantially improves the well-being of smallholder farmers.

Heifer in Nepal:
1957/1958AD

Passing on the Gifts®



BACKGROUND TO DAIRY SECTOR IN NEPAL

Percentage of households (HH) keeping dairy animals

Category by # of milking animals	% of HH
1 to 2	60.0%
3 to 5	25.7%
6 to 10	9.0%
11 to 15	3.3%
16 and above	2.1%
Total	100.0%

- Mastitis is a major constraint to increasing milk production and causes great economic loss to dairy farmers and health hazards to consumers.
- The prevalence of sub-clinical mastitis in dairy animals (cattle and buffaloes) from different parts of the country representing smallholder farms and institutional farms ranges from 13.6% to 60%.

(Dhakal and Salman, 1992; Jha et al., 1993; Dhakal and Tiwary, 1993; Dhakal, 1994; Khakurel, 1996; Joshi and Joshi, 1997; Yadav and Deo, 2010).

RESEARCH BACKGROUND

A 2017 study lead by Heifer International Nepal as part of the Livestock Systems Innovation Lab developed a technology package for smallholder farmers to reduce mastitis prevalence in dairy animals in Nepal.

HEIFER INTERNATIONAL NEPAL WORKING DISTRICTS



Project districts within the Feed the Future zones of influence.

A total of 400 smallholders dairy animal keeping households (100 from each project area) where Heifer has already been working were included.

TECHNOLOGY / SOLUTION

- The innovation is a package of technologies and practices to prevent and control mastitis
- The package consists of
 1. Identifying knowledge gaps;
 2. Developing GHP (good husbandry practices) including appropriate technologies like CMT (California mastitis test) & milk conductivity test, PMTD (post milking teat dipping), and DCT (dry cow therapy)
 3. Training dairy farmers / technicians and periodic follow up to motivate them for adoption of the practices and technologies.



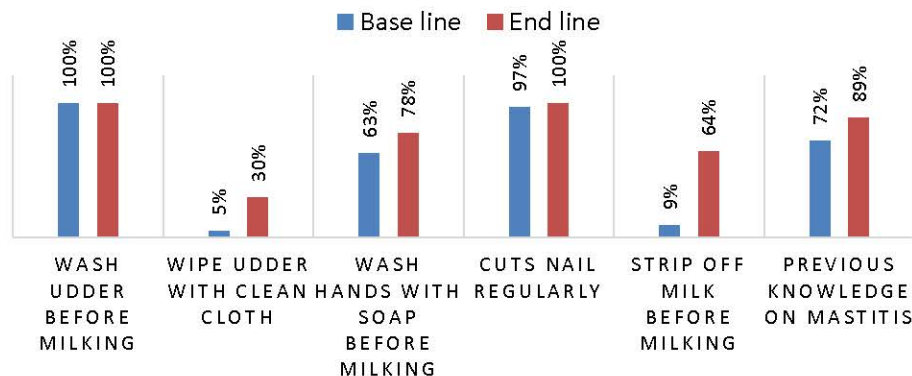
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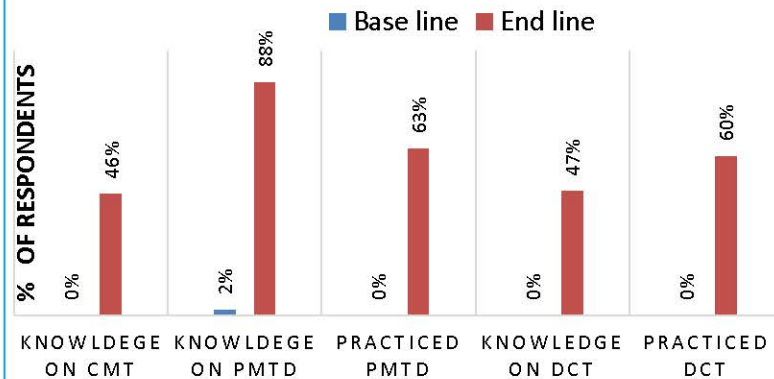
PROBLEM ADDRESSED

- Base line (n=654) and end line (n=403) farmer surveys

Adoption of Good Husbandry Practices



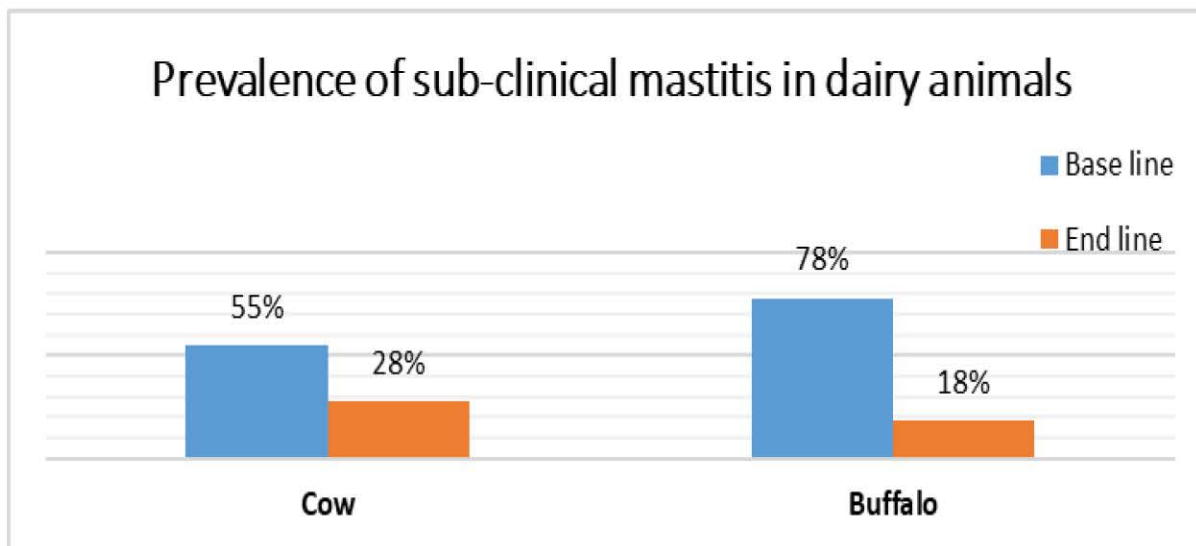
Mastitis Control Technologies: Knowledge and Adoption





PROBLEM ADDRESSED

- Base line (n=654) and end line (n=403) farmer surveys



DRIVERS AND ENABLING CONDITIONS FOR ADOPTION

- The mastitis technology package can be tailored to different production settings and geographies, and the prevention and control measures are simple, easily adoptable and economically rewarding for dairy farmers and cooperatives.
- The upscaling idea will be implemented in 12 districts engaging around 10,000 dairy farmers of 25 Social Entrepreneur Women Cooperatives (SEWC).
- An experimental design will be carried out with 50 dairy farmers from each 25 SEWC to make farmers realize the benefit of adopting GHP and mastitis control technologies. The neighboring farmers replicate the technology package.



- The local vet technicians from each site will be selected and mobilized to make aware / train / motivate dairy farmers to adopt GHP and mastitis control technologies.
- Regular monthly Self help group (SHG) meetings will be organized under technician / group leaders to sensitize / motivate group members to adopt the technology package.





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- The exchange visits and interactions among farmers will greatly support the wider scale dissemination of the good practices and findings and motivate them for adoption.



- Farmers' feedback mechanism will be established at each cooperative level on the basis of conductivity readings to encourage all dairy farmers to improve overall GHP in dairy farming and produce quality milk safe for human consumption.



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- The GHP manual and mastitis control extension materials (posters, radio jingles, video etc.) will be instrumental in greatly supporting the wider scale dissemination of good practices and technologies for controlling mastitis.



गाई भैसीको उचित व्यवस्थापन

(थुनेलो रोगको रोकथाम तथा नियन्त्रणका लागि)

तालिम संचालन पुस्तिका



गाई भैसीमा थुनेलोको रोकथाम तथा नियन्त्रण



१. गाई भैसीको सुत्तको र रोगको रोकथाम गर्नुपर्छ ।



२. दूध दुध्न र दुधको बोरो राम्रो ढाक्नुपर्छ ।



३. दूध दुध्न गर्दा हातलाई धुनुपर्छ ।



४. दूध दुध्न गर्दा हातलाई धुनुपर्छ ।



५. दूध दुध्न गर्दा हातलाई धुनुपर्छ ।



६. दूध दुध्न गर्दा हातलाई धुनुपर्छ ।



७. दूध दुध्न गर्दा हातलाई धुनुपर्छ ।



८. दूध दुध्न गर्दा हातलाई धुनुपर्छ ।





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- Local agro-vets / coops can supply these materials to the farmers at genuine rate. Such would help in creating a healthy and sustainable market chain of materials used in mastitis diagnosis and control technologies.



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FINANCIAL SUSTAINABILITY

- Scaling up the technology package would require US\$ 0.2 million.

Cost	Target	Total (\$)	Purpose
\$ 15 / dairy animals	10,000 dairy animals	\$ 150,000	To adopt mastitis control practices. This covers training of technicians and/or model farmers and supply milk testing technologies (CMT kit; milk checker).
\$ 2000 / dairy coop	25 dairy coop	\$ 50,000	To establish testing and information feedback systems.
Total		\$ 200,000	
Farmers will need to purchase some items themselves (povidone iodine; antibiotics). These inputs will ideally be purchased collectively through dairy cooperatives at a lower cost			

- After these initial inputs, the project will be financially self-sustainable as no further subsidies will be required.



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- Technology Package for Prevention and Control of Mastitis in Dairy Animals: Once covered in extension packages in around 10,000 dairy animals, an additional 1 million liters milk annually will be supplied to regional and national milk grid by the end of year three.
- Thus, 10,000 smallholder dairy farmers (on an average 1 dairy animal per household in rural areas of Nepal) will be in position to receive additional US\$ half million income, annually.
- The benefits will far outweigh the costs in economic (increased income from milk sales) and nutrition (consumption of safe milk free of mastitis) terms.



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Disclaimer: This report is made possible by the generous support of the American people through the United States Agency for International Development (USAID) and its Feed the Future Innovation Lab for Livestock Systems managed by the University of Florida and the International Livestock Research Institute. The contents are the responsibility of Heifer International Nepal and do not necessarily reflect the views of USAID or the United States Government.

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